FIGURE 1

```
                1                                                    60
196x.seq        GT..................TAGCTCAGATTGAACGCTGGCGGCAGGCTTAAACACATGC
Mcomm.seq       NAAACTGAAGAGTTTGATCATGGCTCAGATTGAACGCTGGCGGCAGGCTTAA.CACATGC

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196x.seq        AAGTCGAGCGGTAACAGGGG.AGCTTGCTCCT.GCTGACGAGCGGCGGACGGGTGAGTAA
Mcomm.seq       AAGTCGAGCGGTAACATTGCTAGCTTGCTAGAAGATGACGAGCGGCGGACGGGTGAGTAA

              121                                                   180
196x.seq        CGCGTAGGAATCTGCCTAGTAGAGGGGGACAACATGTGGAAACGCATGCTAATACCGCAT
Mcomm.seq       CGCGTAGGAATCTGCCTAGTAGTGGGGGACAACATGTGGAAACGCATGCTAATACCGCAT

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Mcomm.seq       ACGCCCTACGGGGGAAAGGAGGGNN.TCTTCGGA.CCTTTCGCTATTAGATGAGCCTGCG

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Mcomm.seq       TGAGATTAGCTAGTTGGTGGGGTAAAGGCCTACCAAGGCGACGATCTCTAGCTGGTCTGA

              301                                                   360
196x.seq        GAGGATGACCAGTCACACTGGGACTGAGACACGGCCCAGACTCCTACGGGAGGCAGCAGT
Mcomm.seq       GAGGATGATCAGCCACACTGGGACTGAGACACGGCCCAGACTCCTACGGGAGGCAGCAGT

              361                                                   420
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Mcomm.seq       GGGGAATATTGGACAATGGGCGCAAGCCTGATCCAGCCATGCCGCGTGTGTGAAGAAGGC

              421                                                   480
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              481                                                   540
196x.seq        TTGACGTTAGCCCCAGAAGAAGCACCGGCTAACTCTGTGCCAGCAGCCGCGGTAATACAG
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              541                                                   600
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Mcomm.seq       AGGGTGCGAGCGTTAATCGGAATTACTGGGCGTAAAGCGCGCGTAGGCGGTTTGTTAAGT

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              661                                                   720
196x.seq        TGGTAGAGGGGTGTGGAATTTCCTGTGTAGCGGTGAAATGCGTAGATATAGGAAGGAACA
Mcomm.seq       CGGTAGAGGGGTGTGGAATTTCCTGTGTAGCGGTGAAATGCGTAGATATAGGAAGGAACA

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Mcomm.seq       TCAGTGGCGAAGGCGACACCCTGGACCGATACTGACGCTGAGGTGCGAAAGCGTGGGGAG

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Mcomm.seq       CAAACAGGATTAGATACCCTGGTAGTCCACGCCGTAAACGATGTCTACTAGCCGTTGGGG

              841                                                   900
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              901                                                   960
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Mcomm.seq       AAGGTTAAAACTCAAATGAATTGACGGGGGCCCGCACAAGCGGTGGAGCATGTGGTTTAA

              961                                                  1020
196x.seq        TTCGAAGCAACGCGAAGAACCTTACCTACTCTTGACATCCACAGAACATTTGAGAGATCA
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Mcomm.seq       ATTGGTGCCTTCGGGAACTCTGAGACAGGTGCTGCATGGCTGTCGTCAGCTCGTGTTGTG

                1081                                                    1140
 196x.seq       AAATGTTGGGTTAAGTCCCGTAACGAGCGCAACCCTTGTCCTTATTTGCCAGCACGTAAT
Mcomm.seq       AAATGTTGGGTTAAGTCCCGTAACGAGCGCAACCCTTATCCTTATTTGCCAGCACTTCG.

                1141                                                    1200
 196x.seq       GGTGGGAACTTTAAGGAGACTGCCGGTGACAAACCGGAGGAAGGTGGGGACGACGTCAAG
Mcomm.seq       GGTGGNAACTCTAAGGAGACTGCCGGTGACAAACCGGAGGAAGGTNGGNNCGACGTCAAG

                1201                                                    1260
 196x.seq       TCATCATGGCCCTTACGAGTAGGGCTACACACGTGCTACAATGGCGTATACAGAGGGCTG
Mcomm.seq       TCATCATGGCCCTTACGAGTAGGGCTACACACGTGCTACAATGGGGTATACAGAGGGCAG

                1261                                                    1320
 196x.seq       CAAGCTAGCGATAGTGAGCGAATCCCACAAAGTACGTCGTAGTCCGGATTGGAGTCTGCA
Mcomm.seq       CGAACTCGCGAGGGTAAGCAAATCCCAAAAAGTACGTCGTAGTCCGGATTGGAGTCTGCA

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 196x.seq       ACTCGACTCCATGAAGTCGGAATCGCTAGTAATCGTGAATCAGAATGTCACGGTGAATAC
Mcomm.seq       ACTCGACTCCATGAAGTCGGAATCGCTAGTAATCGTGAATCAGAATGTCACGGTGAATAC

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 196x.seq       GTTCCCGGGCCTTGTACACACCGCCCGTCACACCATGGGAGTTGATTGCTCCAGAAGTAG
Mcomm.seq       GTTCCCGGGCCTTGTACACACCGCCCGTCACACCATGGGAGTTGATTGCTCCAGAAGTAG

                1441                                                    1500
 196x.seq       CTAGCTTAACCCTTCGGGGATGGCGGTTACCACGGAGTGGTCAATGACTGGGGTTGAAGT
Mcomm.seq       CTAGCTTAACCTNC..GGGATGGCGGTTACCACGGAGTGGTCAATGA.............

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 196x.seq       CTACGCG
Mcomm.seq       .......
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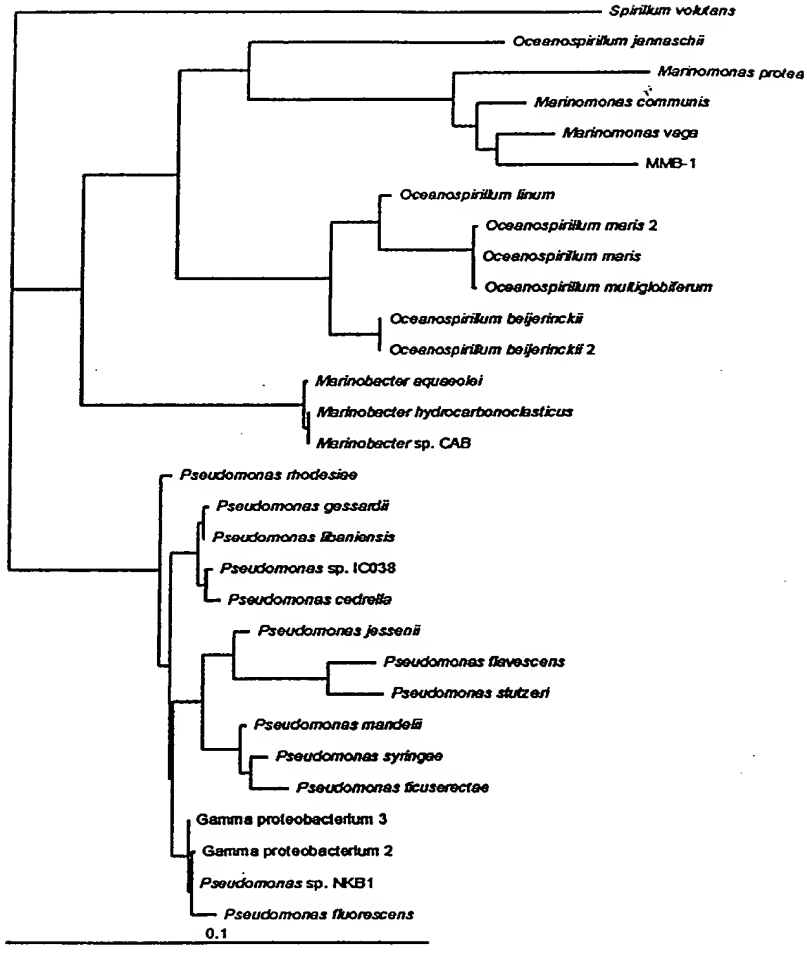
Figure 1 (cont)

FIGURE 2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Marinomonas protea
Marinomonas communis
Marinomonas vega
MMB-1
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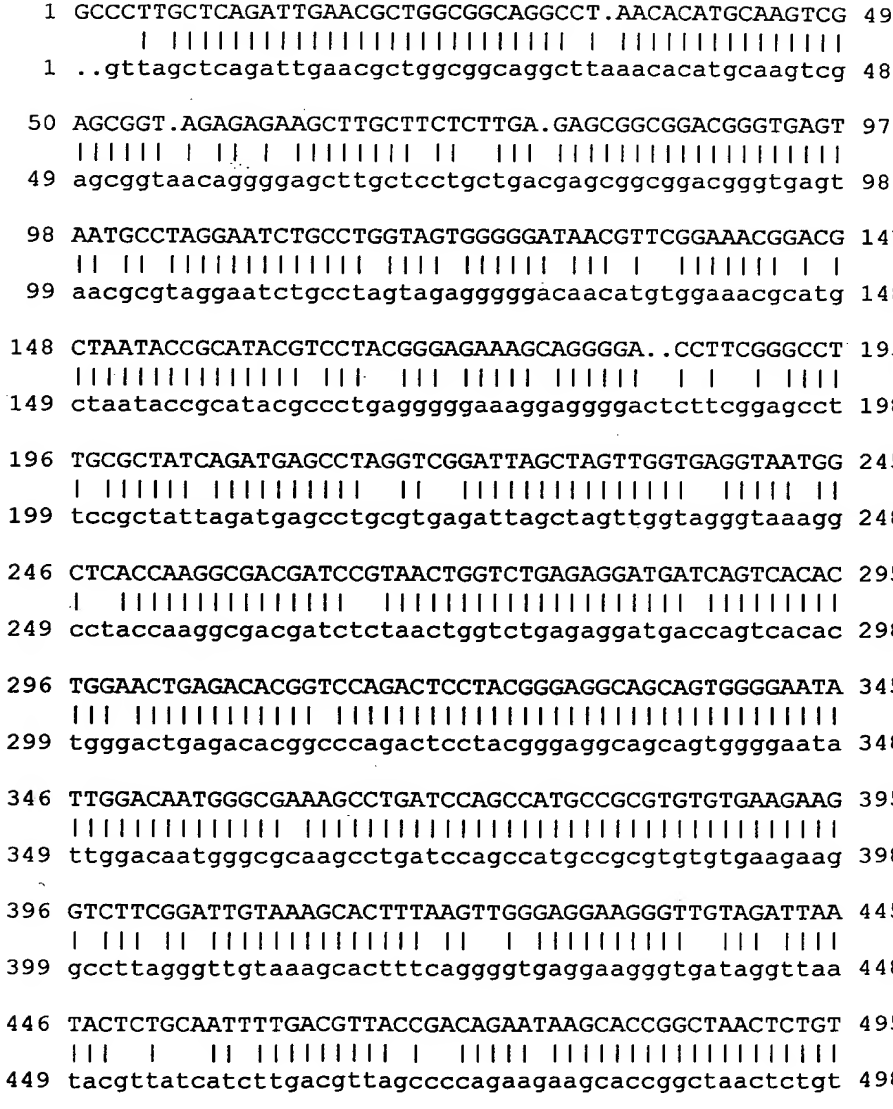
Oceanospirillum maris 2
Oceanospirillum maris
Oceanospirillum multiglobiferum
Oceanospirillum beijerinckii
Oceanospirillum beijerinckii 2
Marinobacter aquaeolei
Marinobacter hydrocarbonoclasticus
Marinobacter sp. CAB
Pseudomonas rhodesiae
Pseudomonas gessardii
Pseudomonas libaniensis
Pseudomonas sp. IC038
Pseudomonas cedrella
Pseudomonas jessenii
Pseudomonas flavescens
Pseudomonas stutzeri
Pseudomonas mandelii
Pseudomonas syringae
Pseudomonas ficuserectae
Gamma proteobacterium 3
Gamma proteobacterium 2
Pseudomonas sp. NKB1
Pseudomonas fluorescens
0.1

FIGURE 3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1 ..gttagctcagattgaacgctggcggcaggcttaaacacatgcaagtcg 48
50 AGCGGT.AGAGAGAAGCTTGCTTCTCTTGA.GAGCGGCGGACGGGTGAGT 97
49 agcggtaacaggggagcttgctcctgctgacgagcggcggacgggtgagt 98
98 AATGCCTAGGAATCTGCCTGGTAGTGGGGGATAACGTTCGGAAACGGACG 147
99 aacgcgtaggaatctgcctagtagaggggacaacatgtggaaacgcatg 148
148 CTAATACCGCATACGTCCTACGGGAGAAAGCAGGGGA..CCTTCGGGCCT 195
149 ctaataccgcatacgccctgaggggaaaggaggggactcttcggagcct 198
196 TGCGCTATCAGATGAGCCTAGGTCGGATTAGCTAGTTGGTGAGGTAATGG 245
199 tccgctattagatgagcctgcgtgagattagctagttggtagggtaaagg 248
246 CTCACCAAGGCGACGATCCGTAACTGGTCTGAGAGGATGATCAGTCACAC 295
249 cctaccaaggcgacgatctctaactggtctgagaggatgaccagtcacac 298
296 TGGAACTGAGACACGGTCCAGACTCCTACGGGAGGCAGCAGTGGGGAATA 345
299 tgggactgagacacggcccagactcctacgggaggcagcagtggggaata 348
346 TTGGACAATGGGCGAAAGCCTGATCCAGCCATGCCGCGTGTGTGAAGAAG 395
349 ttggacaatgggcgcaagcctgatccagccatgccgcgtgtgtgaagaag 398
396 GTCTTCGGATTGTAAAGCACTTTAAGTTGGGAGGAAGGGTTGTAGATTAA 445
399 gccttagggttgtaaagcactttcaggggtgaggaagggtgataggttaa 448
446 TACTCTGCAATTTTGACGTTACCGACAGAATAAGCACCGGCTAACTCTGT 495
449 tacgttatcatcttgacgttagccccagaagaagcaccggctaactctgt 498

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496 GCCAGCAGCCGCGGTAATACAGAGGGTGCAAGCGTTAATCGGAATTACTG 545
    ||||||||||||||||||||||||||||||||||||||||||||||||||||
499 gccagcagccgcggtaatacagagggtgcaagcgttaatcggaattactg 548

546 GGCGTAAAGCGCGCGTAGGTGGTTTGTTAAGTTGGATGTGAAATCCCCGG 595
    |||||||||||||||||||||||||||||||| |||||||||||||| ||
549 ggcgtaaagcgcgcgtaggtggtttgttaagtcggatgtgaaatcccagg 598

596 GCTCAACCTGGGAACTGCATTCAAAACTGACTGACTAGAGTATGGTAGAG 645
    ||||||||| ||||  |||  | | |||| ||  ||||||||||||||||
599 gctcaaccttggaatggcacccgatactggctagctagagtatggtagag 648

646 GGTGGTGGAATTTCCTGTGTAGCGGTGAAATGCGTAGATATAGGAAGGAA 695
    ||  ||||||||||||||||||||||||||||||||||||||||||||||
649 gggtgtggaatttcctgtgtagcggtgaaatgcgtagatataggaaggaa 698

696 CACCAGTGGCGAAGGCGACCACCTGGACTAATACTGACACTGAGGTGCGA 745
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699 catcagtggcgaaggcgacaccctggactaatactgacactgaggtgcga 748

746 AAGCGTGGGGAGCAAACAGGATTAGATACCCTGGTAGTCCACGCCGTAAA 795
    ||||||||||||||||||||||||||||||||||||||||||||||||||
749 aagcgtggggagcaaacaggattagataccctggtagtccacgccgtaaa 798
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 846 GCATTAAGTTGACCGCCTGGGGAGTACGGCCGCAAGGTTAAAACTCAAAT 895
     ||| ||||| ||||||||||||||||||||||||||||||||||||||||
 847 gcaataagtagaccgcctggggagtacggccgcaaggttaaaactcaaat 896

 896 GAATTGACGGGGGCCCGCACAAGCGGTGGAGCATGTGGTTTAATTCGAAG 945
     ||||||||||||||||||||||||||||||||||||||||||||||||||
 897 gaattgacgggggcccgcacaagcggtggagcatgtggtttaattcgaag 946

 946 CAACGCGAAGAACCTTACCAGGCCTTGACATCCAATGAACTTTCTAGAGA 995
     |||||||||||||||||||    |||||||||||  |||| ||  |||||
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 996 TAGATTGGTGCCTTCGGGAACATTGAGACAGGTGCTGCATGGCTGTCGTC 1045
     |    ||||||||||||||||  ||||||||||||||||||||||||||
 997 tcagatggtgccttcgggaactgtgagacaggtgctgcatggctgtcgtc 1046

1046 AGCTCGTGTTGTGAAATGTAAGGGC..................... 1070
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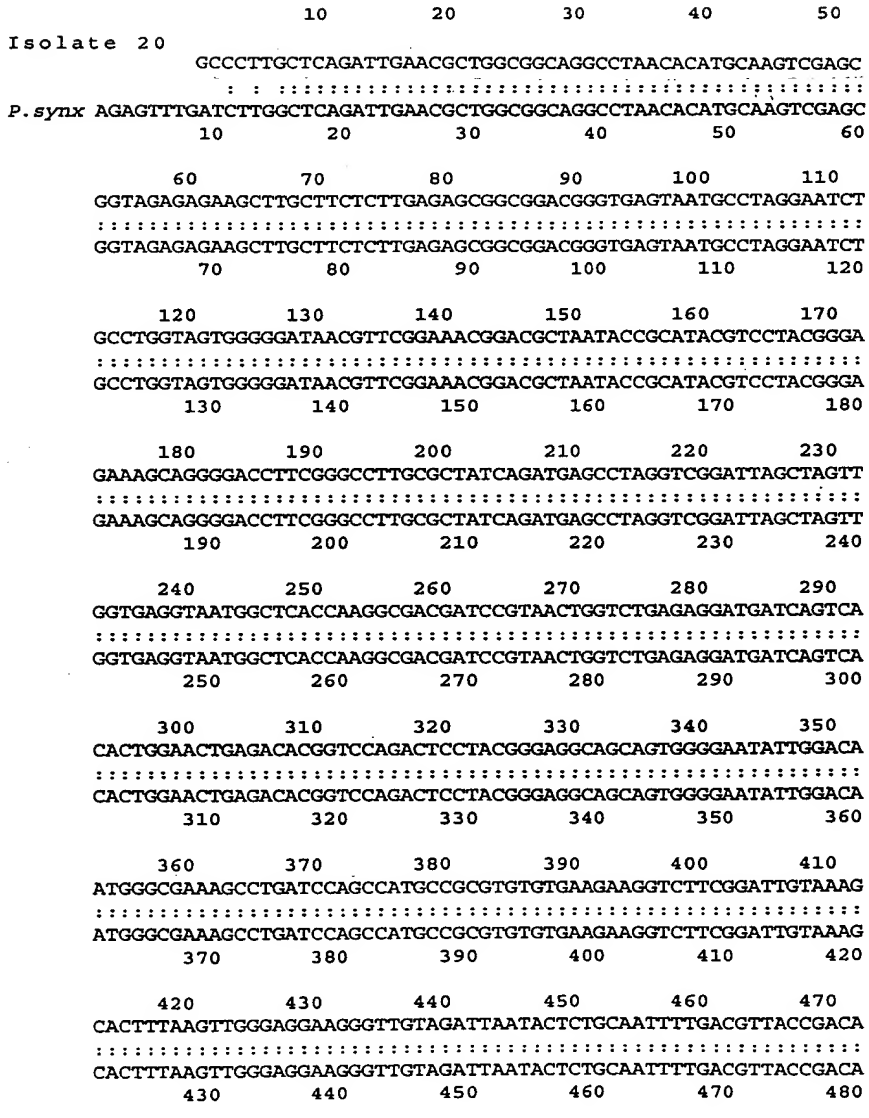
FIGURE 4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Isolate 20
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10 20 30 40 50 60
60 70 80 90 100 110
GGTAGAGAGAAGCTTGCTTCTCTTGAGAGCGGCGGACGGGTGAGTAATGCCTAGGAATCT
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70 80 90 100 110 120
120 130 140 150 160 170
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130 140 150 160 170 180
180 190 200 210 220 230
GAAAGCAGGGGACCTTCGGGCCTTGCGCTATCAGATGAGCCTAGGTCGGATTAGCTAGTT
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190 200 210 220 230 240
240 250 260 270 280 290
GGTGAGGTAATGGCTCACCAAGGCGACGATCCGTAACTGGTCTGAGAGGATGATCAGTCA
GGTGAGGTAATGGCTCACCAAGGCGACGATCCGTAACTGGTCTGAGAGGATGATCAGTCA
250 260 270 280 290 300
300 310 320 330 340 350
CACTGGAACTGAGACACGGTCCAGACTCCTACGGGAGGCAGCAGTGGGGAATATTGGACA
CACTGGAACTGAGACACGGTCCAGACTCCTACGGGAGGCAGCAGTGGGGAATATTGGACA
310 320 330 340 350 360
360 370 380 390 400 410
ATGGGCGAAAGCCTGATCCAGCCATGCCGCGTGTGTGAAGAAGGTCTTCGGATTGTAAAG
ATGGGCGAAAGCCTGATCCAGCCATGCCGCGTGTGTGAAGAAGGTCTTCGGATTGTAAAG
370 380 390 400 410 420
420 430 440 450 460 470
CACTTTAAGTTGGGAGGAAGGGTTGTAGATTAATACTCTGCAATTTTGACGTTACCGACA
CACTTTAAGTTGGGAGGAAGGGTTGTAGATTAATACTCTGCAATTTTGACGTTACCGACA
430 440 450 460 470 480

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      480        490        500        510        520        530
GAATAAGCACCGGCTAACTCTGTGCCAGCAGCCGCGGTAATACAGAGGGTGCAAGCGTTA
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GAATAAGCACCGGCTAACTCTGTGCCAGCAGCCGCGGTAATACAGAGGGTGCAAGCGTTA
       490        500        510        520        530        540

      540        550        560        570        580        590
ATCGGAATTACTGGGCGTAAAGCGCGCGTAGGTGGTTTGTTAAGTTGGATGTGAAATCCC
::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
ATCGGAATTACTGGGCGTAAAGCGCGCGTAGGTGGTTTGTTAAGTTGGATGTGAAATCCC
       550        560        570        580        590        600

      600        610        620        630        640        650
CGGGCTCAACCTGGGAACTGCATTCAAAACTGACTGACTAGAGTATGGTAGAGGGTGGTG
::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
CGGGCTCAACCTGGGAACTGCATTCAAAACTGACTGACTAGAGTATGGTAGAGGGTGGTG
       610        620        630        640        650        660

      660        670        680        690        700        710
GAATTTCCTGTGTAGCGGTGAAATGCGTAGATATAGGAAGGAACACCAGTGGCGAAGGCG
::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
GAATTTCCTGTGTAGCGGTGAAATGCGTAGATATAGGAAGGAACACCAGTGGCGAAGGCG
       670        680        690        700        710        720

      720        730        740        750        760        770
ACCACCTGGACTAATACTGACACTGAGGTGCGAAAGCGTGGGGAGCAAACAGGATTAGAT
::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
ACCACCTGGACTAATACTGACACTGAGGTGCGAAAGCGTGGGGAGCAAACAGGATTAGAT
       730        740        750        760        770        780

      780        790        800        810        820        830
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::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
ACCCTGGTAGTCCACGCCGTAAACGATGTCAACTAGCCGTTGGAAGCCTTGAGCTTTTAG
       790        800        810        820        830        840

      840        850        860        870        880        890
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::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
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      900        910        920        930        940        950
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::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
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      960        970        980        990       1000       1010
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::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
AAGAACCTTACCAGGCCTTGACATCCAATGAACTTTCTAGAGATAGATTGGTGCCTTCGG
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:::::::::::::::::::::::::::::::::::::::::: :::: :::: ::
GAACATTGAGACAGGTGCTGCATGGCTGTCGTCAGCTCGTGTCGTGAGATGTTGGGTTAA
      1030       1040       1050       1060       1070       1080

GTCCCGTAACGAGCGCAACCCTTGTCCTTAGTTACCAGCACGTAATGGTGGGCACTCTAA
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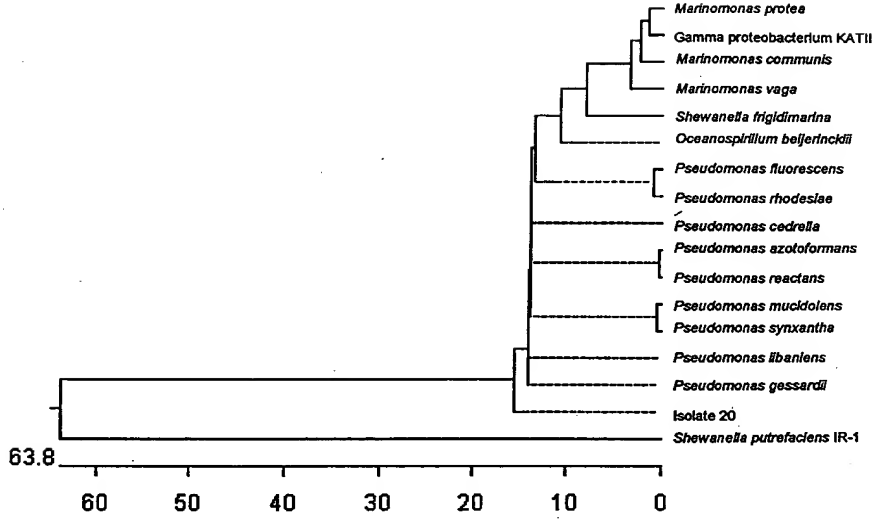
FIGURE 5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Gamma proteobacterium KATII
Marinomonas communis
Marinomonas vaga
Shewanella frigidimarina
Oceanospirillum beijerinckii
Pseudomonas fluorescens
Pseudomonas rhodesiae
Pseudomonas cedrella
Pseudomonas azotoformans
Pseudomonas reactans
Pseudomonas mucidolens
Pseudomonas synxantha
Pseudomonas libanlens
Pseudomonas gessardii
Isolate 20
Shewanella putrefaciens IR-1
63.8
60
50
40
30
20
10
0

Figure 6A

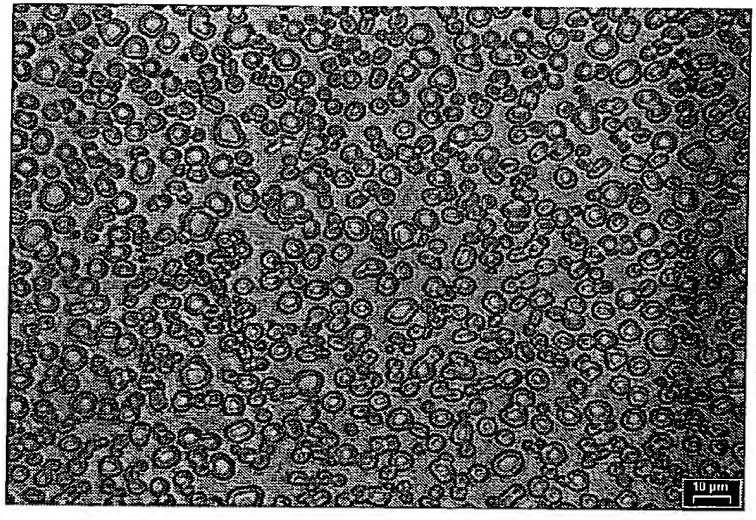


Figure 6B

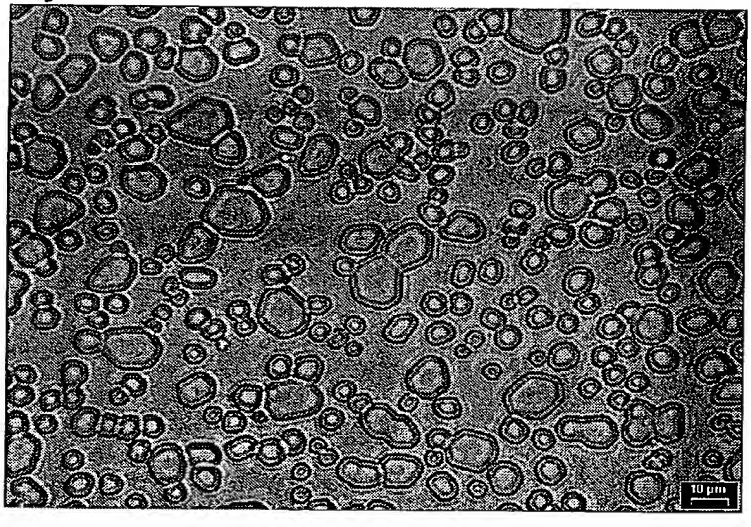


Figure 7

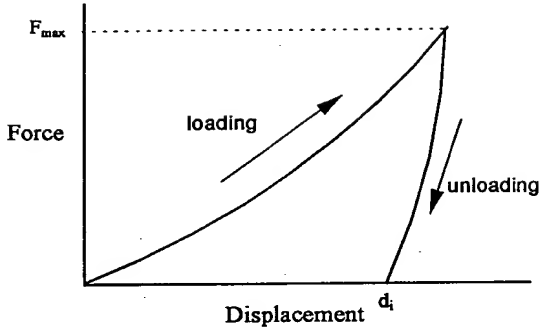


Figure 8

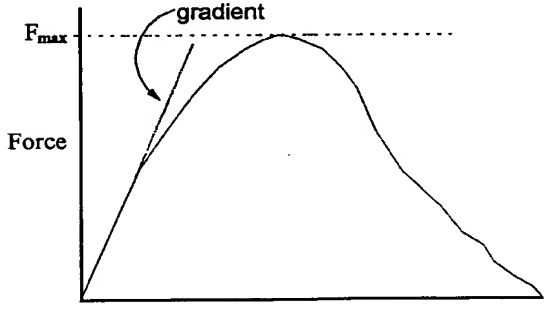
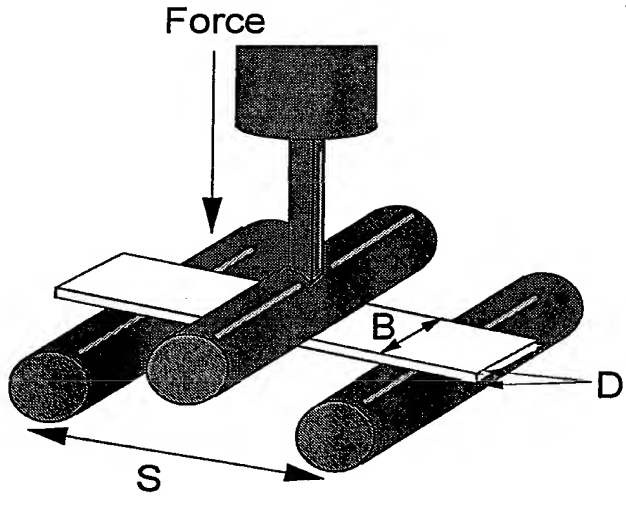


Figure 9: The 3-point bend test



Span (S)	30 mm
Depth (D)	~2 mm
Width (B)	10 mm